CLAIMS

We claim:

1.   A method in a wearable computing device for improving automated responses to a current context of a user of the wearable computing device based on automated learning techniques, the current context of the user being represented by a plurality of context attributes that each model an aspect of the context, multiple defined contextual situations each specifying values for at least one of the context attributes, multiple automated responses being associated with the defined contextual situations, the method comprising:

repeatedly,

receiving an indication of current context information about the user that includes current values for each of the plurality of context attributes;

determining one of the defined contextual situations that matches the indicated current context information in such a manner that the included current values of the indicated current context information include the values for the context attributes specified by the one defined contextual situation;

automatically providing to the user one of the automated responses that is associated with the one defined contextual situation;

receiving an indication from the user of an alternate automated response to be provided; and

storing an indication of a possible relationship between the indicated current context information and the alternate automated response;

automatically detecting a relationship between an identified contextual situation and one of the alternate automated response based on analysis of repeated patterns in the stored indications in which that alternate automated response is indicated by the user; and

creating an association between the identified contextual situation and the one alternate automated response,

so that when the identified contextual situation is determined in the future to match current context information, the one alternate automated response can be provided to the user.

2.   The method of claim 1 including, before the creating of the association between the identified contextual situation and the one alternate automated response, verifying appropriateness of the association.

3.   The method of claim 2 wherein the verifying of the appropriateness of the association includes receiving explicit authorization from the user to create the association.

4.   The method of claim 3 wherein the receiving of the explicit authorization from the user includes:

suggesting the association between the identified contextual situation and the one alternate automated response to the user;

receiving from the user a request to explain the suggested association;

automatically explaining the suggested association by generating a response based on the analyzed repeated patterns; and

receiving from the user the explicit authorization.

5.   The method of claim 2 wherein the verifying of the appropriateness of the association is performed automatically without user intervention.

6.   The method of claim 2 wherein the verifying of the appropriateness of the association includes determining that providing the one alternate automated response when the user is in the identified contextual situation is safe.

7.   The method of claim 1 including, after the creating of the association:

receiving an indication of current context information about the user that includes current values for each of the plurality of context attributes;

determining that the identified contextual situation matches the indicated current context information in such a manner that the included current values of the indicated current context information include the values for the context attributes specified by the one identified contextual situation; and

automatically providing to the user the alternate automated response that is associated with the identified contextual situation.

8.   The method of claim 1 including, after each of the received indications from the user to provide an alternate automated response, providing that alternate automated response to the user.

9.   The method of claim 1 wherein at least some of the automated responses include presenting information to the user that is appropriate based on the one defined contextual situation determined to match the current context information.

10.   The method of claim 1 including, after one of the automatic providings to the user of one of the automated responses associated with one of the defined contextual situations:

receiving from the user a request to explain the providing of the automated response; and

explaining the provided response based on the association between that one automated response and that one defined contextual situation.

11.   The method of claim 1 wherein the analysis of the repeated patterns in the stored indications is based on an automated learning algorithm.

12.   The method of claim 1 wherein the identified contextual situation is not a defined contextual situation, and wherein the creating of the association includes defining the identified contextual situation.

13.   The method of claim 1 wherein before the creating of the association the identified contextual situation is a defined contextual situation having an existing association with an automated response distinct from the one alternate automated response, and wherein the creating of the association includes modifying the existing association.

14.   The method of claim 1 wherein the identified contextual situation represents an explicit context rules that matches current context information, and wherein the alternate automated response includes processing the matching current context information in order to provide additional context information about the user.

15.   The method of claim 1 wherein the alternate automated response includes presenting information to the user that is appropriate to the identified contextual situation.

16.   The method of claim 1 wherein the alternate automated response includes presenting functionality to the user that is appropriate to the identified contextual situation.

17.   The method of claim 1 wherein the alternate automated response includes presenting a graphical user interface control to the user that is appropriate to the identified contextual situation.

18.   The method of claim 1 wherein the alternate automated response includes automatically performing at least some of the steps in a multi-step task.

19.   The method of claim 1 wherein the alternate automated response includes prompting the user to take an indicated change.

20.   The method of claim 1 wherein the alternate automated response includes notifying the user of a pre-defined occurrence.

21.   The method of claim 1 wherein at least one of the context attributes represents information about a user of the wearable computing device.

22.   The method of claim 21 wherein the represented information reflects a modeled mental state of the user.

23.   The method of claim 1 wherein at least one of the context attributes represents information about the wearable computing device.

24.   The method of claim 1 wherein at least one of the context attributes represents information about a physical environment.

25.   The method of claim 1 wherein at least one of the context attributes represents information about a cyber-environment of a user of the wearable computing device.

26.   A method in a computing device for improving responses to context information based on automated learning techniques, multiple responses each being associated with a group of context information, the method comprising:

receiving indications of multiples responses previously indicated by at least one user and of context information related to each of the multiple responses;

automatically detecting a relationship between a group of context information and one of the responses based on the received indications; and

creating an association between the group of context information and the one response,

so that the one response can be provided in the future in response to a context that matches the group of context information.

27.   The method of claim 26 wherein the computing device performs the method on behalf of a user of a thin client computing device.

28.   A computing device for improving responses to context information based on automated learning techniques, multiple responses each being associated with a group of context information, comprising:

a learning component capable of receiving indications of multiples responses previously indicated by at least one user and of context information related to each of the multiple responses, and capable of automatically detecting a relationship between a group of context information and one of the responses based on the received indications; and

a response modifier component capable of creating an association between the group of context information and the one response.

29.   The computing device of claim 28 wherein the computing device is a wearable computer.

30.   A computer system for improving responses to context information based on automated learning techniques, multiple responses each being associated with a group of context information, comprising:

means for receiving indications of multiples responses previously indicated by at least one user and of context information related to each of the multiple responses;

means for automatically detecting a relationship between a group of context information and one of the responses based on the received indications; and

means for creating an association between the group of context information and the one response.

31.   A computer-readable medium whose contents cause a computing device to improve responses to context information based on automated learning techniques, multiple responses each being associated with a group of context information, by:

receiving indications of multiples responses previously indicated by at least one user and of context information related to each of the multiple responses;

automatically detecting a relationship between a group of context information and one of the responses based on the received indications; and

creating an association between the group of context information and the one response.

32.   The computer-readable medium of claim 31 wherein the computer-readable medium is a data transmission medium transmitting a generated data signal containing the contents.

33.   The computer-readable medium of claim 31 wherein the computer-readable medium is a memory of a computer system.